

### **Remarks**

Reconsideration of the application and allowance of all pending claims are respectfully requested. Claims 1-3 and 6-76 remain pending.

In the Office Action, dated August 19, 2004, claims 1-3 and 6-75 are rejected under 35 U.S.C. 102(e) as being anticipated by Wipfel et al. (U.S. Patent No. 6,338,112). Additionally, claim 76 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wipfel in view of Thorbjornsen et al. (WO 96/37837). In the remarks below applicants specifically address a number of the dependent claims. This is a *bona fide* attempt to advance prosecution of this application. Applicants reserve the right to present arguments for the independent claims and other dependent claims during further prosecution of this application, including appeal, if warranted. Applicants are not acquiescing to the rejection of any of the claims.

One aspect of applicants' invention relates to managing clusters of a computing environment. Various cluster components, having differing dependencies upon one another, are provided in order to manage the clusters. The dependencies of these components are explicitly recited in the dependent claims. Applicants respectfully submit that these specific dependencies, examples of which are described below, are not described, taught or suggested in Wipfel.

For example, dependent claims 21, 45 and 69 specifically recite that the configuration component is responsible for starting the registry component, the liveness component, the group services component and the resource management component in a defined order. Specifically, that defined order, as recited in the claims, includes starting the registry component, and then the liveness component, the group services component and the resource management component. Applicants respectfully submit that there is no such teaching or suggestion in Wipfel of a configuration component starting these other components in this particular order. Wipfel fails to address the starting of the components, and in particular, fails to define the particular order in which the components are started. Wipfel is silent as to this feature.

In the Office Action, support for this rejection is indicated at Col. 8, lines 40-52. However, a careful reading of that section merely indicates that resources are to be efficiently managed and that this management includes detecting failures, compensating failures and

reallocating shareable resources between nodes. There is no discussion at all of a configuration component starting other components of the system in a particular order. For example, there is no discussion in the cited section or in other sections of Wipfel of the configuration component starting the registry component, and then the liveness component, the group services component and the resource management component. Such an ordering is missing from the teachings of Wipfel. For at least this reason, applicants respectfully request an indication of allowability for claims 21, 45 and 69, and any claims that depend therefrom.

As a further example, claims 22, 46 and 70 specifically recite that the registry component begins a first phase of its initialization, in response to being started, and that first phase of initialization includes determining at least one copy of a global configuration database to be used in the starting. Again, Wipfel fails to describe, teach or suggest one or more of these claimed features. For instance, there is no discussion at all in Wipfel of the phases of initialization. Further, there is no discussion that the first phase of initialization of the registry component includes determining a copy of a global configuration database to be used in the starting. Such features are not described, taught or suggested in Wipfel.

In the Office Action, support for this rejection is indicated at, for instance, Col. 9, lines 61-67. This section may mention the word initialization, but there is no description, teaching or suggestion of phases of initialization nor is there any description, teaching or suggestion of a registry component, in response to being started, beginning a first phase of initialization and that first phase of initialization including determining at least one copy of a global configuration database to be used in the starting. Instead, this section of Wipfel merely mentions that memory may be initialized at startup, and if so, validation 510 may be set to a value other than an initial value. There is no discussion in Wipfel of a first phase of initialization of a registry component that includes determining at least one copy of a global configuration database to be used in the starting. Since one or more of these features are missing from Wipfel, applicants respectfully submit that claims 22, 46 and 70 are not anticipated by Wipfel.

Further support for this rejection is indicated at Col. 15, line 61 to Col. 16, line 5 and FIG. 7 of Wipfel. Again, applicants respectfully submit that this section fails to describe, teach or suggest one or more features claimed by applicants in claims 22, 46 and 70. Although the

words global and initialization may be found in this section, this section does not describe, teach or suggest a registry component beginning a first phase of its initialization, in response to being started, and that first phase of initialization comprising determining at least one copy of a global configuration database to be used in the starting. Instead, this section of Wipfel merely teaches how to make room in a global queue and how to add to the global queue. There is no description in this section or any other section of Wipfel of one or more features of applicants' claimed invention. Therefore, applicants respectfully request an indication of allowability for dependent claim 22, 46 and 70, and any claims that depend therefrom.

As yet a further example, claims 23, 47 and 71 specifically indicate that the configuration component utilizes a copy of the at least one copy of the global configuration database to verify data, and then continues with starting the liveness component, the group services component and the resource management component. Again, these specific elements and dependencies are not described, taught or suggested in Wipfel. Wipfel makes no mention of a configuration component utilizing a copy of a global configuration database determined during the first phase of initialization of a registry component to verify data and then continue with starting a liveness component, a group services component and a resource management component. These details are missing from Wipfel.

In the Office Action, support for this rejection is indicated at Col. 8, lines 17-20 of Wipfel. However, applicants respectfully submit that a careful reading of this section merely states the other cluster configurations place all shared memory on a single node or in a separate device. There is no discussion in this section or other sections of Wipfel of utilizing a copy of the global configuration database determined during a first phase of initialization of a registry component to verify data and then continue with starting the liveness component, the group services component and the resource component. Since one or more of these elements are missing from Wipfel, applicants respectfully request an indication of allowability for claims 23, 47 and 71, and any claims depending therefrom.

In another example, claims 24, 48 and 72 specifically recite that the group services component completes its initialization, in response to the liveness component becoming available. There is no such dependency described in Wipfel. That is, there is no description,

teaching or suggestion in Wipfel of such a relationship in which a group services component completes its initialization, in response to the liveness component becoming available. Again, such details are missing from Wipfel.

In the Office Action, support for this rejection is indicated at Col. 8, lines 57-64. This section merely indicates that when a node is restored to membership or a node is added to the cluster, that the resource is to be managed appropriately, including notifying the rest of the cluster. There is no discussion in this section or other sections of Wipfel of when initialization of a particular component is to be completed. There is no description, teaching or suggestion in Wipfel of completing initialization of a group services component, in response to the liveness component becoming available. Since Wipfel fails to describe, teach or suggest at least this dependency, applicants respectfully request an indication of allowability for claims 24, 48 and 72, as well as for any claims that depend therefrom.

As yet a further example, applicants explicitly recite in dependent claims 25, 49 and 73 that a registry component begins a second phase of its initialization, in response to the group services component completing initialization, and that the second phase of initialization includes updating zero or more copies of the global configuration database to allow write operations against the global configuration database. Again, these specific elements and dependencies are not described, taught or suggested in Wipfel. Wipfel makes no mention of different phases of initialization. Further, Wipfel makes no mention of a registry component beginning a second phase of its initialization, in response to a group services component completing initialization. Yet further, Wipfel makes no mention of a second phase of initialization including updating zero or more copies of the global configuration database to allow write operations against the global configuration database. Thus, Wipfel fails to describe, teach or suggest one or more aspects of applicants' claimed invention.

In the Office Action, support for this rejection is indicated at Col. 9, lines 48-52 and Col. 28, line 58. These sections merely indicate that values may be updated. The updating of values is not a teaching or suggestion of the specific elements claimed by applicants. Again, there is no description in this section or in any other section of Wipfel of a registry component beginning a second phase of its initialization, in response to a group services component completing

initialization, in which the second phase of initialization comprises updating zero or more copies of a global configuration database to allow write operations against the global configuration database. Thus, applicants respectfully request an indication of allowability for claims 25, 49 and 73, and any claims that depend therefrom.

For at least the above reasons, applicants respectfully submit that Wipfel fails to describe, teach or suggest one or more aspects of applicants' claimed invention, and thus, Wipfel does not anticipate those claims. Therefore, applicants respectfully request an indication of allowability for at least those claims.

In addition to the above, claim 76 is rejected as being unpatentable over Wipfel in view of Thorbjornsen. Applicants respectfully, but most strenuously, traverse this rejection for the reasons below.

Claim 76 explicitly recites that the computing environment is a shared nothing environment. Thus, in this aspect of applicants' claimed invention, various components of a shared nothing computing environment are used to manage clusters of that environment. In contrast to this claimed feature, Wipfel specifically describes an environment in which shared resources are used to manage a cluster. In particular, Wipfel describes the use of shared memory, as well as shared nonvolatile storage (see, e.g., Fig. 2) in managing a clustered environment. This use is described throughout Wipfel. Thus, Wipfel does not describe a shared nothing environment, as explicitly admitted in the Office Action. Therefore, Thorbjornsen is relied upon. However, applicants respectfully submit that the combination of Wipfel and Thorbjornsen is improper, and thus, for at least this reason, respectfully request withdrawal of the rejection based on the combination.

For example, the combination is improper, since there is no teaching or suggestion in the references themselves to make the combination or modification suggested in the Office Action. It is well known that:

It is insufficient to establish obviousness that the separate elements of the invention existed in the prior art; absent some teaching or suggestion, in the prior art, to combine the elements. *Arkie Lures Inc. v. Gene Larew Tackle Inc.*, 43 USPQ2d 1294, 1297 (Fed. Cir. 1997).

Applicants respectfully submit that there is no such teaching or suggestion in the references themselves. In fact, one would not combine Wipfel and Thorbjornsen, since Wipfel explicitly uses shared resources and is not concerned at all with a shared nothing environment.

Justification for the combination is stated in the Office Action, as follows:

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to employ the teachings of Thorbjornsen within the system of Wipfel by implementing a share nothing environment within the cluster managing system because Thorbjornsen teaches that within a share nothing architecture, the nodes are divided into groups because this provides multi-fault tolerance and fault masking (see page 6, lines 24-31).

Again, applicants respectfully submit that the above justification does not indicate where the references explicitly teach the combination. Instead, the above appears to be hindsight reconstruction of applicants' invention. That is, the justification is simply a selection of various elements of the combination in an attempt to create applicants' invention, rather than a reason for the combination drawn from the references or from the knowledge available to one of ordinary skill in the art. For this reason alone, the combination is improper.

Additionally, the combination is improper because Wipfel teaches away from the combination. In Wipfel, shared resources are used to manage the environment. The teachings of Thorbjornsen of a shared nothing environment undermine the teachings of Wipfel, in which shared resources are explicitly used and needed. Thus, Wipfel teaches away from the proposed combination.

Further, the modification of Wipfel to have a shared nothing environment would destroy the intended function of Wipfel that specifically teaches the use of shared resources. Thus, the combination of Wipfel and Thorbjornsen is improper.

Applicants respectfully submit that one of ordinary skill in the art would not combine the teachings of vastly different environments to solve a problem of one environment. That is, one skilled in the art would not combine the teachings of an environment that uses shared resources with a shared nothing environment. Thus, one skilled in the art would not combine the teachings of Wipfel and Thorbjornsen.

Since the combination of Wipfel and Thorbjornsen is improper for one or more reasons, applicants respectfully request withdrawal of the rejection of claim 76 based on the combination, and applicants respectfully request an indication of allowability for claim 76.

Based on the foregoing, applicants respectfully request an indication of allowability for at least the claims discussed herein and any claims depending therefrom. Should the Examiner wish to discuss this case with applicants' attorney, please contact applicants' attorney at the below listed number.

Respectfully submitted,

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